



COFC

PTO/SB/21 (09-06)

Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FORM (to be used for all correspondence after initial filing)	Application Number	10/604,264	
	Filing Date	07/07/2003	
	First Named Inventor	Bao-Chi Peng	
	Art Unit	2611	
	Examiner Name	KIM, KEVIN	
Total Number of Pages in This Submission	8	Attorney Docket Number	ACMP0081USA

ENCLOSURES (Check all that apply)		
<input checked="" type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/ Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please identify below): 1. A copy of the Front Page of Patent 2. A copy of Fee Transmittal 3. Copies of the Notice of Recordation
Remarks Request for Certificate of Correction of Office Mistake		
Certificate JAN 03 2007		
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT		
Firm Name	North America Intellectual Property Corporation	
Signature	<i>Winston Hsu</i>	
Printed name	Winston Hsu	
Date	JAN 03 2007	Reg. No. 41,526

CERTIFICATE OF TRANSMISSION/MAILING		
I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on the date shown below:		
Signature	<i>Brenda Lin</i>	
Typed or printed name	Brenda Lin	Date JAN 03 2007

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

JAN - 9 2007



PTO/SB/17 (07-06)

Approved for use through 01/31/2007. OMB 0651-0032

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Effective on 12/08/2004.

Fees pursuant to the Consolidated Appropriations Act, 2005 (H.R. 4818).

FEE TRANSMITTAL

For FY 2005

☐ Applicant claims small entity status. See 37 CFR 1.27TOTAL AMOUNT OF PAYMENT (\$)**0.00****Complete if Known**

Application Number	10/604,264
Filing Date	07/07/2003
First Named Inventor	Bao-Chi Peng
Examiner Name	KIM, KEVIN
Art Unit	2611
Attorney Docket No.	ACMP0081USA

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit Card ☐ Money Order ☐ None ☐ Other (please identify): _____☒ Deposit Account Deposit Account Number: **50-3105** Deposit Account Name: **North America Intellectual Property Corporation**

For the above-identified deposit account, the Director is hereby authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☐ Charge fee(s) indicated below, except for the filing fee
☒ Charge any additional fee(s) or underpayments of fee(s) under 37 CFR 1.16 and 1.17 ☒ Credit any overpayments**WARNING:** Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.**FEE CALCULATION****1. BASIC FILING, SEARCH, AND EXAMINATION FEES**

Application Type	FILING FEES		SEARCH FEES		EXAMINATION FEES		Fees Paid (\$)
	Small Entity	Fee (\$)	Small Entity	Fee (\$)	Small Entity	Fee (\$)	
Utility	300	150	500	250	200	100	
Design	200	100	100	50	130	65	
Plant	200	100	300	150	160	80	
Reissue	300	150	500	250	600	300	
Provisional	200	100	0	0	0	0	

2. EXCESS CLAIM FEES

Fee Description	Small Entity	Fee (\$)	Fee Paid (\$)
Each claim over 20 (including Reissues)	50	25	
Each independent claim over 3 (including Reissues)	200	100	
Multiple dependent claims	360	180	
Total Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- 20 or HP = _____ x _____ = _____			
HP = highest number of total claims paid for, if greater than 20.			
Indep. Claims	Extra Claims	Fee (\$)	Fee Paid (\$)
- 3 or HP = _____ x _____ = _____			
HP = highest number of independent claims paid for, if greater than 3.			

3. APPLICATION SIZE FEE

If the specification and drawings exceed 100 sheets of paper (excluding electronically filed sequence or computer listings under 37 CFR 1.52(e)), the application size fee due is \$250 (\$125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).

Total Sheets	Extra Sheets	Number of each additional 50 or fraction thereof	Fee (\$)	Fee Paid (\$)
_____ - 100 = _____	_____ / 50	_____ (round up to a whole number) x _____	_____	_____

4. OTHER FEE(S)

Non-English Specification, \$130 fee (no small entity discount)

Fees Paid (\$)

Other (e.g., late filing surcharge): _____

SUBMITTED BY

Signature	<i>Winston Hsu</i>	Registration No. (Attorney/Agent)	41,526	Telephone	3027291562
Name (Print/Type)	Winston Hsu			Date	JAN 03 2007

This collection of information is required by 37 CFR 1.136. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

JAN - 9 2007

PATENT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor : Bao-Chi Peng
Examiner: KIM, KEVIN Art Unit: 2611
Patent No. : US 7,145,970 B2 Issue Date: Dec. 5, 2006
Docket No. : ACMP0081USA

Title: Frequency Offset Detector for AFC under Rayleigh
Fading

To: Commissioner for Patents
P.O. BOX 1450
Alexandria, VA 22313-1450

Subject: Request for Certificate of Correction of Office Mistake

The name of the assignee listed on the front page of the Patent is incorrect (Attachment 1). Documents on record indicate this as an Office mistake of consequence.

The applicant hereby requests that a Certificate of Correction be issued under 37 CFR 1.322 to correct the name of the assignee from "**Beno Corporation**" to "**BenQ Corporation**" which was correctly listed on the Fee Transmittal submitted on 10/19/2006 (Attachment 2) and the Notice of Recordation of assignment document dated 07/08/2003 (Attachment 3).

JAN - 9 2007

Sincerely yours,

Winston Hsu

Date: JAN 03 2007

Winston Hsu, Patent Agent No. 41,526

P.O. BOX 506, Merrifield, VA 22116, U.S.A.

Voice Mail: 302-729-1562

Facsimile: 806-498-6673

e-mail : winstonhsu@naipo.com

Note: Please leave a message in my voice mail if you need to talk to me. (The time in D.C. is 13 hours behind the Taiwan time, i.e. 9 AM in D.C. = 10 PM in Taiwan.)

JAN - 9 2007

Please correct the name of the assignee from "Beno Corporation" to "BenQ Corporation".



US007145970B2

(12) **United States Patent**
Peng

(10) **Patent No.:** **US 7,145,970 B2**
(45) **Date of Patent:** **Dec. 5, 2006**

(54) **FREQUENCY OFFSET DETECTOR FOR AFC UNDER RAYLEIGH FADING**

6,097,770 A * 8/2000 Bahai et al. 375/343

(75) **Inventor:** **Bao-Chi Peng, Hsin-Chu (TW)**

* cited by examiner

(73) **Assignee:** **Beno Corporation, Tao-Yuan Hsien (TW)**

Primary Examiner—Kevin Kim

(74) *Attorney, Agent, or Firm*—Winston Hsu

(*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 729 days.

(57) **ABSTRACT**

(21) **Appl. No.:** **10/604,264**

A frequency offset detector for AFC under Rayleigh fading. The AFC includes a variable phase generator, an exponential term $e^{j\Delta\omega t}$, multiplied on an incoming signal, a low-pass filter, a gain amplifier, a multiplier, and an offset detector. The offset detector includes a filter, an amplifier, a delay block, three adders, and two blocks that output the absolute value of an inputted signal. The filter is a Finite Impulse Response (FIR) filter that produces a Hilbert Transformation of the inputted complex gain. The Hilbert FIR filter, together with the complex gain and two of the adders, generate two complex signals: X_p and X_n respectively representing the positive and negative frequency components of the inputted complex gain. The detector output is equal to the difference between the magnitudes of X_p and X_n .

(22) **Filed:** **Jul. 7, 2003**

(65) **Prior Publication Data**

US 2005/0008108 A1 Jan. 13, 2005

(51) **Int. Cl.**
H04L 27/06 (2006.01)

(52) **U.S. Cl.** **375/344; 455/164.1; 455/192.2**

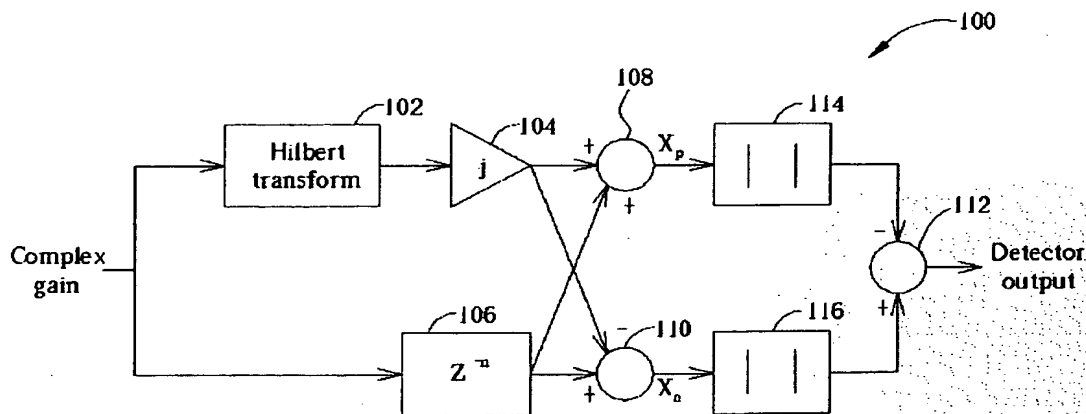
(58) **Field of Classification Search** **375/344**
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,802,117 A * 9/1998 Ghosh 375/344

14 Claims, 10 Drawing Sheets



JAN - 9 2007

Attachment 2

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail** Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

027765 7590 09/06/2006

NORTH AMERICA INTELLECTUAL PROPERTY
 CORPORATION
 P.O. BOX 506
 MERRIFIELD, VA 22116

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Brenda Lin	(Depositor's name)
<i>Brenda Lin</i>	(Signature)
10/19/2006	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,264	07/07/2003	Bao-Chi Peng	ACMP0081USA	1263

TITLE OF INVENTION: Frequency Offset Detector for AFC under Rayleigh Fading

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1400	\$300	\$0	\$1700	12/06/2006

EXAMINER	ART UNIT	CLASS-SUBCLASS
KIM, KEVIN	2611	375-344000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

- (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,
- (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1. Winston Hsu

2. _____

3. _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.111. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

BenQ Corporation

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

No. 157, Shan-Ying Road, Gueishan, Tao-Yuan Hsien, Taiwan,
 R.O.C.

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee
- ☒ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 50-3105 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature

Winston Hsu

Date

10/19/2006

Typed or printed name

Winston Hsu

Registration No.

41,526

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

9 2007

9 2007

Attachment 3



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

JULY 08, 2003

NAIPO (NORTH AMERICA INTERNATI
P.O. BOX 506
MERRIFIELD, VA 22116



800007123A

AC17-81-USA.



939229

UNITED STATES PATENT AND TRADEMARK OFFICE
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 07/07/2003

REEL/FRAME: 013777/0977
NUMBER OF PAGES: 2

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

PENG, BAO-CHI

DOC DATE: 06/10/2003

ASSIGNEE:

BENQ CORPORATION

NO.157, SHAN-YING ROAD, KWEISHAN
TAO-YUAN HSIEN, TAIWAN

SERIAL NUMBER: 10604264

PATENT NUMBER:

FILING DATE:

ISSUE DATE:

STEVEN POST, EXAMINER
ASSIGNMENT DIVISION
OFFICE OF PUBLIC RECORDS

JAN - 9 2007

PATENT ASSIGNMENT

Electronic Version v07
 Stylesheet Version v02

**07/07/2003
 800007123**

SUBMISSION TYPE:		NEW ASSIGNMENT		APPLICATION NUMBER 10/604264	
NATURE OF CONVEYANCE:		ASSIGNMENT OF ASSIGNOR'S INTEREST			
CONVEYING PARTY DATA					
Name		Execution Date			
Bao-Chi Peng		2003-06-10			
RECEIVING PARTY DATA					
Name	Street Address	Internal Address	City	State/Country	Postal Code
BenQ Corporation	No.157, Shan-Ying Road, Kweishan		Tao-Yuan Hsien	TAIWAN	
CORRESPONDENCE DATA					
FAX NUMBER: 886229295950 <i>Correspondence will be sent via US Mail when the fax attempt is unsuccessful.</i> When the customer number has been provided, the Office of Public Records will obtain the correspondence data from the official record on file at the USPTO. CUSTOMER NUMBER: 027765					
NAME OF PERSON SIGNING:		WINSTON HSU			
DATE SIGNED:		2003-07-08			
Total Attachments: 1 source=ACMP0081ASS1.tif					

CH \$40.00 500801 10604264

JAN - 9 2007